depression southwest of Vancouver Island on the 23d and 24th resulted in disturbed conditions prior to its passage inland over British Columbia. The British steamer *Aorangi*, outward bound from Victoria, encountered fresh westerly gales late on the 23d, increasing to force 9 early on the 24th. The ship's lowest pressure, 29.40, was read on the 23d near 46½° N., 129° W.

Closely following upon the heels of this LOW, a further disturbance pressed in upon the Washington coast from the westward. From the 27th to 29th strong winds to gales were experienced in connection with it to the eastward of 150° W., and to the northward of the fortieth parallel. On the morning of the 28th the storm center was near 52° N., 140° W., with lowest observed pressure 28.62; and at p. m. observation the center had moved eastward to about 132° W., with barometer about 28.70. Early on the morning of the 28th the American steamship *Coloradan*, bound up the coast to Portland, after steaming in southerly gales since the previous noon, experienced a south gale of force 11 in 46°54′ N., 125°24′ W. Gales of decreasing force continued until the ship entered the Columbia River. The storm center after the 28th moved toward the Gulf of Alaska, but continued to cause gales on the 29th far to the southward along the eastern extremity of the northern steamer route.

The following wind velocities, speed in miles per hour with the corresponding direction, were recorded for 5-minute periods at the Weather Bureau Station at North Head, Wash., during the 24th to 28th: 24th, 50 west; 25th, 61 south; 26th, 54 southwest; 27th, 64 south; 28th, 70 south.

Typhoon in the Far East.—One typhoon occurred in the Far East this month. An account of it, prepared by the Reverend Bernard F. Doucette, S. J., of the Philippine Weather Bureau, is subjoined.

Gales on and near the Gulf of Tehuantepec.—Strong northerly winds of the Tehuantepecer type occurred as follows: Of force 7 on the 4th, 11th, 12th, and 27th; and of force 8 on the 2d, 3d, 6th, and 20th. The U. S. S. *Neches*, Coco Solo to San Pedro, in addition to the Tehuantepecer of the 6th, experienced a northeast Papagayo of force 7 off the Costa Rican coast on the 4th.

Fog.—Fog was infrequent this month on the North Pacific. It was reported on 5 days along the middle section of the northern routes; on 5 days several hours out from the coast of the United States; and on 1 day near the mouth of the Columbia River. Off the coast of southern and Lower California it occurred on 3 days, and northwest of the Revillagigedo Islands on 1 day.

TYPHOON OVER THE FAR EAST, DECEMBER 1937

Rev. BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Typhoon, December 2–14, 1937.—A low pressure area appeared over the Western Caroline Islands on November 30, but a definite center did not form until December 2, when a depression was central about 200 miles east-southeast of Yap. It moved rather rapidly in a northwesterly direction, inclining somewhat to the west-northwest as it approached the one hundred and thirty-fifth meridian. On December 3 it changed to the west-southwest, intensifying as it proceeded. The next morning found it about 300 miles east of Surigao Strait, from which position it moved west by north, crossing southern Samar Island between Borongan and Guiuan. On December 5 it moved across the Visayan Islands, crossing the southern part of Masbate Island and passing close to and north of Panay Island. At 6 a. m. December 6 its center was located between Tablas and Mindoro Islands. It now began an irregular course, moving slowly and weakening. First there was an inclination to the south for about 20 miles, then during the forenoon of December 7 a shift to the east, bringing the center to the northwestern part of Panay Island, and finally a change to the southwest, which carried the disturbance to the northern part of the Sulu Sea (December 8). These facts briefly indicate its irregular course. Now, as a weak low pressure area it moved along a west-northwest course into and across the China Sea, where it intensified into a typhoon. The steamship *President Polk*, en route from Manila to Singapore, came under its influence after it again became a typhoon, central near latitude 12° N., longitude 115° E. The typhoon now continued along a west-northwest course for a short period, moving in a northerly direction December 13 and disappearing over the region of the Paracel Islands and Reefs, December 14.

This storm followed a course over the Visayan Islands similar to the typhoon of November 15–23, 1937. However, only four deaths resulted from this typhoon according to the newspaper reports, two from Masbate and two from Mindoro being the only casualties coming to the notice of the public.

On December 11 and 12 an increase in the strength of the northeast monsoon current caused the intensification of the low pressure area over the China Sea as mentioned above. The steamship *President Polk* reported on December 12, 2 p. m. Manila time, 749.7 mm (29.516 in.) with south-southeast winds force 8, at latitude 12.20° N., longitude 115.30° E.

Over the Visayan Islands the significant barometric minima are listed as follows: Borongan had 737.22 mm (29.025 in.) at 4 p. m. December 4; Guiuan, 1 hour before, had a minimum value of 745.79 mm (29.362 in.); Tacloban's minimum value occurred at 7:30 p. m. of the same day, and was 744.70 mm (29.319 in.); December 5 at 3 p. m. 747.7 mm (29.437 in.) was recorded at Masbate; December 6, at 4:25 a. m., Odiongan had a value of 745.34 mm (29.344 in.), and Cuyo, 2 days later, reported 748.65 mm (29.474 in.) as the minimum (December 8, 10 a. m.). The strongest winds reported were west winds, force 11, at Tacloban. During the course of the storm over the Visayan Islands, after crossing Samar, the strongest winds reported were force 7.

SEA-SURFACE TEMPERATURE SUMMARY FOR A PORTION OF THE NORTH ATLANTIC OCEAN NEAR TO AND EAST OF THE VIRGINIA-NORTH CAROLINA CAPES

By GILES SLOCUM

The area embraced in this summary comprises eleven 1° squares, namely:

From 35° N. to 36° N., 69° W. to 74° W.
From 36° N. to 37° N., 69° W. to 73° W.
From 37° N. to 38° N., 69° W. to 71° W.

This area includes a portion of the axis of the Gulf Stream, but lies south and east of its shoreward portions, thus excluding nearly all of the area alternately occupied by the Gulf Stream and by the cold waters of the con-

tinental slope.[4] The area here summarized includes, in its southern and eastern portions, however, waters oceanward from, and slightly cooler than, the Gulf Stream.

The table shows monthly mean sea-surface temperatures, compiled to tenths of a Fahrenheit degree, except for 1918, when the observations were few in number. As indicated in the table, no data are available for July 1918. The interpolated temperature, 78.3°, has been used for this month in computing averages.

This is the ninth of a series of temperature-history tabulations of this character showing sea-surface temperatures for small areas in American waters. The first of the series appeared in the November 1934 issue of the MONTHLY WEATHER REVIEW and the last previous tabulation appeared in the September 1936 issue.

[4] Called the "Slope Water" in: Church, P. E., Temperatures of the Western North Atlantic from Thermograph records, Association D'Oceanographie Physique Publication Scientifique No. 4. 1937. Fig. 2.

Monthly and annual mean sea-surface temperatures in the warm waters east of the Virginia and North Carolina capes, 1912 to 1931, inclusive

Stations														
Year	Total number of observations for the year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1912	491	67.3	64.8	64.8	68.4	73.1	75.0	79.4	79.9	78.4	75.4	71.5	69.9	72.3
1913	503	69.8	66.6	67.1	69.6	70.9	74.5	77.8	78.6	78.1	74.5	72.2	69.5	72.4
1914	395	65.5	66.2	65.0	67.9	69.8	74.9	78.5	79.8	77.8	74.5	73.0	69.8	71.9
1915	440	67.9	66.9	65.5	67.4	71.9	73.8	78.8	82.0	79.9	75.7	73.5	68.1	72.6
1916	275	66.9	67.0	66.3	66.0	69.4	74.1	76.0	79.7	78.2	73.8	71.9	69.6	71.6
1917	106	65.3	63.4	64.7	69.7	69.4	74.0	78.9	78.3	76.7	75.3	67.7	68.6	71.0
1918	40	62	65	69	66	72	74	[1]	80	80	74	74	72	[2] 72.1
1919	156	67.0	62.2	66.8	64.4	70.9	73.3	77.5	79.4	78.4	77.4	71.9	69.4	71.6
1920	286	66.8	63.9	68.4	66.3	67.8	73.7	77.2	79.8	78.6	75.4	73.3	69.8	71.8
1921	453	67.2	65.9	68.5	70.5	70.6	76.0	78.1	78.9	79.7	76.2	73.2	69.9	72.9
1922	430	68.2	66.3	66.3	67.8	69.7	74.6	78.9	79.0	77.6	76.6	72.7	70.6	72.4
1923	601	66.5	65.8	68.5	69.6	72.7	76.3	78.4	79.8	79.0	75.7	72.1	69.9	72.9
1924	678	69.1	65.5	67.1	67.8	71.7	76.0	79.6	79.9	78.6	75.0	71.9	69.3	72.6
1925	683	66.1	67.6	67.9	68.9	72.8	76.8	79.0	79.4	77.3	75.6	71.5	68.9	72.6
1926	785	65.9	66.0	64.8	69.1	72.3	75.8	78.9	81.0	79.2	76.9	72.3	69.6	72.7
1927	919	67.4	67.0	68.2	69.2	72.0	75.5	78.5	79.5	78.7	75.8	73.5	70.3	73.0
1928	909	68.0	65.2	66.5	68.6	70.5	75.2	79.1	80.3	79.0	77.6	72.9	69.7	72.7
1929	900	67.6	65.6	68.7	71.3	72.8	76.4	79.0	79.4	78.9	75.6	74.1	71.9	73.4
1930	871	69.2	69.0	68.6	69.6	73.2	75.3	79.6	79.6	79.5	74.9	73.1	69.5	73.4
1931	769	67.1	65.8	64.4	65.4	70.6	74.6	79.7	80.9	80.1	75.8	74.2	71.7	72.5
Number of years' record		20	20	20	20	20	20	19	20	20	20	20	20	20
Mean (1912-31)[3]		67.1	65.8	66.9	68.2	71.2	75.0	78.6	79.8	78.7	75.6	72.5	69.9	[2] 72.4

[1] No data.
[2] Interpolated values are used for missing months.
[3] All monthly values were carried to 1 decimal place for these means, which, therefore, are not exact means of figures given here.